Global Power Semiconductors Market: Key Research Findings 2015

◆ Research Outline

Yano Research Institute has conducted a study on the global power semiconductors market with the following conditions:

1. Research period: September 2015 to January 2016
2. Research target: Manufacturers of power semiconductor devices, wafers, and systems
3. Research methodologies: Face-to-face interviews by the specialized researchers, telephone/email surveys, and literature research

<What are power semiconductors?>
Power semiconductors are semiconductor devices or so called Power Devices mainly used as inverters/converters needed for switching, converting and controlling of electricity, and for supplying electricity to motors.

The power semiconductors market in this research includes MOSFET (Metal Oxide Semiconductor Field Effect Transistors) /IPD (Intelligent Power Devices) or diodes, IGBT (Insulated Gate Bipolar Transistors), power modules, bipolar transistors, and power devices made using SiC or GaN.

◆ Key Findings

■ Size of Global Power Semiconductors Market in 2015 Projected to Decline by 7.0% on Y-o-Y Basis to Attain US$ 14,820 Million

The global power semiconductors market in 2014 grew steadily by 11.3% on year-over-year basis to attain US$15,930 million. However, the slacken demands of power semiconductors for industrial equipment in the Chinese and European markets and slower market growth in power supply devices for consumer products, such as TVs, are regarded to reduce the market size by 7.0% to US$14,820 million in 2015.

■ Demands for Automobiles and Industrial Equipment Drive Global Power Semiconductors Market to Reach US$ 23,100 Million by 2020 and US$33,910 Million by 2025

Decline of the market in 2015 is expected to turn to a recovery in the latter half of 2016, boosted by power modules for industrial equipment, diodes for automobiles, and MOSFET. It is likely that more power semiconductors are introduced to industrial equipment such as those for new energies, servo motors, and UPS. As for power semiconductors for automobiles, strong growth is continued to be promising for diodes and MOSFET embedded per vehicle. Driven by those favorable factors, size of the global power semiconductors market is projected to attain US$23,100 million by 2020, and US$ 33,910 million by 2025.
Global Market of Next-Generation (SiC or GaN) Power Semiconductors to be Fully Launched in 2020, Expected to Reach US$3,130 Million by 2025

Use of SiC in power semiconductors has been growing, especially in diodes, but introducing of SiC transistors are limited to some applications due to the cost issue. The market of GaN transistors is projected to be launched in 2016, mainly targeting power supply devices for consumer products. Full recognition and adoption of the global next-generation power semiconductors is likely to be in 2020 and beyond, with the global market size expected to reach US$3,130 million by 2025.

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Figure & Table 1: Transition and Forecast of Global Power Semiconductors Market Size

<table>
<thead>
<tr>
<th></th>
<th>2014 (Actual)</th>
<th>2015 (Prospect)</th>
<th>2020 (Forecast)</th>
<th>2025 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Si</td>
<td>157.9</td>
<td>146.5</td>
<td>216.5</td>
<td>307.8</td>
</tr>
<tr>
<td>Si/GaN</td>
<td>1.4</td>
<td>1.7</td>
<td>14.5</td>
<td>31.3</td>
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<tr>
<td>Global Power</td>
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<tr>
<td>Semiconductors</td>
<td>159.3</td>
<td>148.2</td>
<td>231.0</td>
<td>339.1</td>
</tr>
<tr>
<td>Market (Total)</td>
<td></td>
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</tbody>
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Estimated by Yano Research Institute

Notes:
1. The market size is based on shipment values at the manufacturers.
2. The figures in 2015 are prospect, and the figures in 2020 and 2025 are forecast values.
3. Si stands for those power semiconductors made using silicon wafers.
4. SiC/GaN stands for those power semiconductors made using SiC or GaN.

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